



Adaptations and the Environment

Connections to Africa

Grade Levels

Grades 4-6

Engage

This activity is designed to start your students in recognizing themselves as scientists and thinking critically about problem-solving. The goal is to teach concepts through discovery and to encourage using scientific thought processes. As with all lessons provided, please feel free to adapt them according to your students' abilities. You may find it more successful to lead activities and discussions as a whole group rather than using individual Research Plan sheets. Certain scientific vocabulary may or may not be appropriate for your students' level of understanding. Take these ideas, make them your own and your students will have a greater chance at success.

How do the differences in adaptations of African and Asian elephants reflect the habitats in which they live?

1. Begin this lesson by telling students that they will be investigating an elephant's adaptations.
2. If your students are familiar with brainstorming and recording their ideas, break them into small groups. If your students need more guidance, work with them as a large group. Engage your students in a discussion of what they predict the answer to this question to be. More importantly, why do they think this?

Explore

3. Continue with the above discussion and encourage the group to come up with ways that they could investigate the question and test their predictions scientifically (all suggestions are welcomed). Are there materials that would help them find the answer? Should they be making observations? What will they do with the information once they have it? And how will they know that they've successfully answered the question? Allow a wide variety of ideas and encourage conversation amongst the students to refine the details of their ideas.
4. Ideas should be recorded on the Research Plan sheets. Small groups can record their own answers or you can record ideas as a group.

Explain

5. Explain to the group that you have an activity that might help to give them some insight in to the situation.
6. First, students will need to make a list of every elephant adaptation they can think of. An adaptation can be anything special about an animal that makes it unique and helps it to survive.
7. Allow the students to make their lists, and then discuss the lists with them and make a master list on the board for everyone to see.
8. After compiling the master list of adaptations, compare how some of the characteristics may differ between the elephants found in two different environments.
9. Students will need to explore both materials within this kit as well as other materials that may be available to them in order to learn about the similarities and differences between the two types of elephants and their habitats.
10. When students have completed their research, ask them to answer the following questions for each of the adaptations on their list.
 - a. How would this adaptation help the elephant survive within its own habitat?
 - b. Would this adaptation help or hinder the elephant if it lived in the other elephant's habitat?
11. Have the students build on these questions to determine whether the form and function of a specific adaptation might help them to survive in their specific habitat.

Expand

12. As the students think about the situations that they have just seen through the activity, have them reflect on what happened.
13. Discuss this situation further with the students. How easy or difficult would it be for an African or Asian elephant to survive in a different habitat? Would they be able to survive in the wild in Ohio? Why or why not?
14. Brainstorm ideas for possible ways an elephant might be able to survive in a foreign habitat.
15. Feel free to repeat the activity in any number of ways with any number of situations that your students can come up with.

Assess

16. Was the outcome the same as what they had predicted? Was the fact that the elephants' adaptations fit specifically for their environment something that they had thought of before the activity?
17. If the students are working in small groups, observe their work and review what they are writing on the Research Plan. If working as a whole group, fill in the Research Plan together.

Standards

Ohio Academic Content Standards
Grade 5 Life Science Topic: Interconnections Within Ecosystems Organisms perform a variety of roles in an ecosystem

Next Generation Science Standards
Interdependent Relationships in Ecosystems MS-LS2-2 Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems Growth, Development, and Reproduction of Organisms MS-LS1-5 Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms



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Supplemental Materials

My Research Plan

1. Questioning

State the problem.
Make a hypothesis.



How do the differences in adaptations of African and Asian elephants reflect the habitats in which they live?

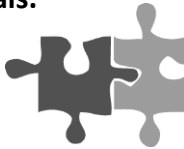
2. Planning

Make a plan by asking
these questions
(think, talk, write)



3. Implementing

Gather the materials.
Follow the
procedures.
Observe and
record the results.



4. Concluding

Draw a conclusion.



5. Reporting

Share my results
(informal)
Produce a report
(formal)

